

## REMARKS

By this amendment, claim 1 is revised, and arguments are made to place this application in condition for allowance. Currently, claims 1-4 and 6-9 are before the Examiner for consideration on their merits and claims 10-17 are withdrawn from consideration.

Applicant wishes to thank Examiner Mellon and his supervising Examiner Tony SooHoo for granting a personal interview on May 6, 2010 for this application. This Amendment is being filed in response to the discussions had during the interview. The rejections are traversed based on either the amendments made to claim 1 and arguments and the traversals are set out below under the heading of the applied prior art.

United States Patent No. 6,375,014 to Garcera et al. (Garcera) – 35 USC §102.

In review, claim 1 is rejected based on 35 USC §102 and Garcera. In making this rejection, the Examiner contends that claim 1 reads on Garcera since it did not clarify that the partial pore filling started at the inner surface of the porous support. Claim 1 is revised to clarify that the partial pore filling begins at the inner surface of the porous support. This arrangement is not present in Garcera since the impregnated region is along the outer peripheral surface of the porous support. Thus, this rejection is no longer appropriate and must be withdrawn.

Garcera modified by United States Patent No. 7,247,370 to Childs et al. (Childs) – 35 USC §103.

In this rejection, the Examiner admits that Garcera does not teach that a partial pore filling layer begins at the inner surface of the porous support. To address this deficiency, the

Examiner points to Childs, citing Figure 5, and says that since Childs teaches that the separation layer that uses a gel filling can be either on the inner surface or outer surface of the porous support, it would be obvious to move the location of the impregnation region so that it is on the inner surface of the porous support of Garcera.

As part of this rejection, the Examiner also relies on Garcera to teach the option that the inner surface of the porous support can have a separation or filter layer thereon, citing to col. 1, col. 2, and col. 4 of Garcera.

Applicant submits that the reasoning used to modify Garcera is improper and because of this, the rejection is flawed and could not be sustained on appeal.

In the rejection, the reasons used to support the modification of Garcera are to decrease the amount of fouling of the membrane during operation and to provide additional separation capability by placing the impregnated region next to the filtration layer of Garcera.

This reasoning is flawed since it is not based on a proper interpretation of the teachings of Childs and Garcera. Childs teaches that it is the gel-filled layer itself that is responsible for the lowering of the fouling. When Childs speaks of lower fouling in col. 4, lines 50=54, it is in the context of the inventive membrane, which relates to the gel filled layer and its varying density. Thus, if one of skill in the art were to seek lower fouling, one would replace the pore-filled zone of Garcera with the gel-filled layer of Childs, not change the position of the layer of Garcera.

Another error in the rejection is that the assumption that the movement of the impregnation region of Garcera next to the inner surface of the porous support enhances the separating capability of Garcera's membrane. Implicit in this stance is the view that the impregnation region of Garcera has a separation capability.

This issue was raised in the aforementioned personal interview. During the interview, Applicant's attorney's argued that the impregnation region of Garcera was not a separation layer so that it would not be moved as is the case with the separation layer of Childs. The Examiner took the position that the impregnation layer of Garcera would inherently or could separate molecules so that one of skill in the art would be able to treat it as such and move its location.

Applicant submits that the Examiner has committed error in the rejection since a reasonable interpretation of the impregnation region of Garcera is that it is not a separation layer, even if it is pore-filled. Critical to the rejection is the assumption that the Garcera impregnation layer, which is used as a pressure brake to control permeability as per the Grangeon Declaration, is also recognized as a separation layer so that its change of location “gains an addition factor of separation since its pores closest to the separation layer are now partially pore filled.”, see the last line of page 17 to the lines 1 and 2 of page 18 of the rejection.

While the Examiner is tasked with interpreting the prior art as part of the examination duties assigned by the U.S. Patent and Trademark Office, this interpretation is in the context of the meaning of the prior art to those of skill in the art. *In re Berg*, 320 F.3d 1310 (Fed. Cir. 2003) (“As persons of scientific competence in the fields in which they work, examiners and administrative patent judges on the Board are responsible for making findings, informed by their scientific knowledge, as to the meaning of prior art references to persons of ordinary skill in the art and the motivation those references would provide to such persons.”)

The issue here is whether it is proper for the Examiner to: (1) assume that the impregnation layer of Garcera would be recognized as a separation layer by one of skill in the art; (2) use this assumption to equate it to the gel-filled separation layer of Childs; (3) then say that since the layers of Garcera and Childs are the same, it is proper to use the teachings of

Childs that the separation layer can be on the inside or outside of the support and move the location of the impregnation layer of Garcera to the inside of the support so as to produce the invention; and (4) create an advantage to support the modification by concluding that the modification of Garcera attains additional separation ability.

In interpreting the teachings of Garcera, *In re Berg* indicates that the prior art must be interpreted in light of the knowledge of one of skill in the art.

In assessing the teachings of Garcera, there is no objective teaching that the impregnation layer is considered to be a separation layer. While the Examiner describes the impregnation layer 3 of Garcera as a separation layer, Garcera, in fact, teaches that the permeability gradient created by the impregnation layer 3 means “that the transmembrane pressure between the inside channel and the interface between the filtering layer and the support is approximately constant over the whole length of the membrane, which makes it possible to optimize the filtration without requiring the use of auxiliary equipment.”, see col. 4, lines 3-8. In addition, Garcera already teaches the presence of a separation layer on the inside surface of the support.

Nowhere does the Examiner point to any specific disclosure that the impregnation layer 3 of Garcera is said to be a filtration or separation layer. Thus, one of skill in the art reading Garcera would not come to this conclusion based on Garcera’s own teachings.

Secondly, expert testimony from an expert in the field of membranes, i.e., André Grangeon, who has one patent of record in this application, declares that the impregnation layer of Garcera is, in fact, a pressure brake on the flow of the permeate exiting the filtration layer. This is evidence of the knowledge of one of skill in the art. This evidence says that one of skill in the art would interpret the function of the impregnation layer of Garcera as a way of

modifying the permeability or the flow rate of the permeate passing through the membrane, and not as a separation layer or filtration layer.

Applicants further assert that one of skill in the art would not interpret the impregnation layer 3 of Garcera as a separation or filtration layer given Garcera's own teachings. Since Garcera already provides a filtration layer and only seeks to control permeability using the impregnation layer 3, if certain molecules are stopped by the peripheral layer, such an effect is not only unmentioned in Garcera, but, in fact, undesirable when considering Garcera's aim. The build up of particles or molecules, which have passed through the filtration layer of Garcera, and which would be retained by the impregnation layer 3 having reduced porosity would lead to the destruction of Garcera's support. As evidenced by Grangeon's Declaration, the impregnation layer 3 of Garcera is strictly intended as a pressure brake and it would be unthinkable for one of skill in the art to view it as a filtration layer designed to stop molecules. If it were the case that the impregnation layer would be one that would stop molecules, the molecules would accumulate in the impregnation layer and affect its porosity. Since the porosity without any added molecules is specifically set to achieve the pressure brake function, an additional separation function makes the impregnation layer 3 not viable for Garcera's intended purpose. Put another way, to interpret the impregnation layer 3 to function as a filtration layer, when its main purpose is to act as a pressure brake or control permeability, makes no sense in the context of Garcera's teachings.

What the Examiner is doing is putting the cart before the horse or creating a straw man to support the rejection. That is, the Examiner is first attributing a filtration or separation function to the impregnation region 3 in Garcera and then, with this assumption, saying that since Childs teaches that a separation layer can be on the outer or inner surface of a porous support, one of skill in the art would find it obvious to take the outer peripheral surface layer of Garcera, which

is improperly equated with the gel-filled separation layer of Childs, and put it on the inner surface for enhanced separation capability over and above the filtration provided by the filtration layer of Garcera. This approach is improper since the assumption that the layer 3 of Garcera is a separation or filtration layer has no objective factual support. Moreover, the statement of enhanced separation capability is only derived from the Examiner's thinking, not anything in the prior art. The conclusion of enhanced separation ability is made only after the Examiner improperly concludes that one of skill in the art views the impregnation layer of Garcera as a filtration layer. There is no independent basis for the conclusion of enhanced separation ability; it is based on a faulty reading of Garcera and because of this, cannot be a proper reason to justify the modification of Garcera.

Put another way, the Examiner's opinion cannot take the place of articulated reasoning using the teachings of the prior art to support a rejection based on 35 USC §103 that is required by *KSR*. The faulty assumption concerning the functionality of the impregnation layer 3 of Garcera taints the entire rejection such that it must be withdrawn.

In many instances, the determination of obviousness is the weighing of evidence for and against patentability. The evidence favoring unpatentability must be properly weighed against all countervailing evidence. *In re Piasecki*, 745 F.2d 1468, (Fed. Cir. 1984). In this instance, Applicants have submitted expert testimony regarding the teaching of Garcera.

Moreover, the specification specifically addresses the shortcomings in Garcera, which is described as EP0870534 in paragraph [0012] of Applicant's published patent application. The specification also is replete with the advantages of the arrangement of claim 1 so that the invention is not merely moving of components without any difference in operation. Instead, the invention

provides significant advances in filtration technology as detailed in the specification, see for example, paragraphs [0014, 0015, and 0101].

On the other hand, the Examiner speculates as to the teachings of Garcera in order to support the rejection and essentially ignores the expert testimony and teachings of the specification concerning the problems with Garcera and advantages of the invention.

When weighing all of the evidence for and against patentability, Applicant submits that the scales tilt in favor of Applicant and that claim 1 is patentable over the cited prior art. The patentability of claim 1 also means that its dependent claims are in condition for allowance.

Garcera and United States Published Patent Application No. 2004/0050773 to Neumann.

In this rejection, the Examiner admits that Garcera does not have the impregnation layer on the inner surface of the support and relies on Neumann to modify Garcera in this regard.

Applicant submits that the prior art does not establish a prima facie case of obviousness against claim 1 since the reasoning used to modify Garcera is improper. Neumann teaches a way to make graduated structures for filtration purposes. More particularly, Neumann teaches making two layers, one with metal oxides and one without metal oxides. In the rejection, the Examiner speaks of moving the pore layer of Garcera to accommodate the sintering process of Neumann. Applicant submits that there is no suggestion in Neumann to move the impregnation layer of Garcera and because of this, the rejection using Neumann is improper.

Further, the fact that Neumann employs a sintering step does not lead to the proposed modification of Garcera. In fact, Neumann teaches two sintering steps, not one as stated in the rejection. The second metallic layer is sintered to the support layer, see claim 9. The first layer is formed by wet powder splashing of the suspension on the second layer and then sintering.

In addition, since Neumann is creating a filtering layer, why replace the permeability controlling impregnation layer of Garcera with the filtration layer of Neumann? Garcera already has a separation layer so that it could be replaced using the teaching of Neumann, but such a replacement does not result in the presence of the gradient features of claim 1. There is no proper reason to substitute the filtration layer of Neumann for the impregnation layer 3 of Garcera and the rejection must be withdrawn for this reason.

Even if the Examiner were to say that it is proper to replace the separation layer of Garcera with the filtration layer of Neumann, there is still no teaching of moving the impregnation layer of Garcera so that such a modification of Garcera still does not produce the invention of claim 1.

United States Patent Nos. 6,499,606 to Grangeon and 5,505,841 to Pirbazari.

The other secondary references do not make up for the failings in the rejections using Childs and Neumann so that even if they are properly cited, a prima facie case of obviousness still does not exist.

#### Double Patenting

Applicant submits that the double patenting rejection is not proper since the Examiner has only identified the similarities between the two applications but not the differences and why the differences do not lend any patentable distinction between the two applications. If the double patenting rejection is the only outstanding issue, the Examiner is invited to telephone the undersigned to resolve this instead of issuing another office action just to address the double patenting rejection.

Summary.

In light of the above arguments and the revisions to claim 1, a prima facie case of anticipation is not established using Garcera alone and a prima facie case of obviousness is not established using Garcera with the cited secondary references. The Examiner has committed error by misinterpreting the teachings of the prior art and making assumptions that taint the rejections and require their withdrawal. As a result, the Examiner is respectfully requested to examine this application and pass all pending claims onto issuance.

If the Examiner believes that an interview would be helpful in expediting the allowance of this application, the Examiner is requested to telephone the undersigned at 202-835-1753.

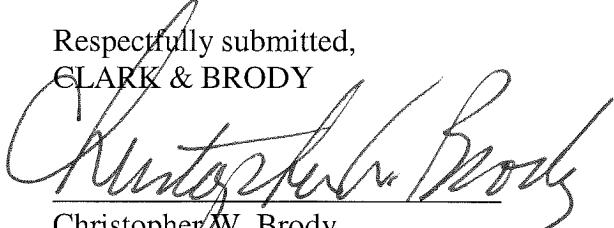
The above constitutes a complete response to all issues raised in the Office Action dated June 5, 2009.

Again, reconsideration and allowance of this application is respectfully requested.

Applicant petitions for a three month extension of time. Please charge Deposit Account No. 50-1088 the fee of \$555.00.

Please charge any fee deficiency or credit any overpayment to Deposit Account No. 50-1088.

Respectfully submitted,  
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